

## United States Department of Agriculture Natural Resources Conservation Service

### Ecological Site Description

**Site Type:** Rangeland

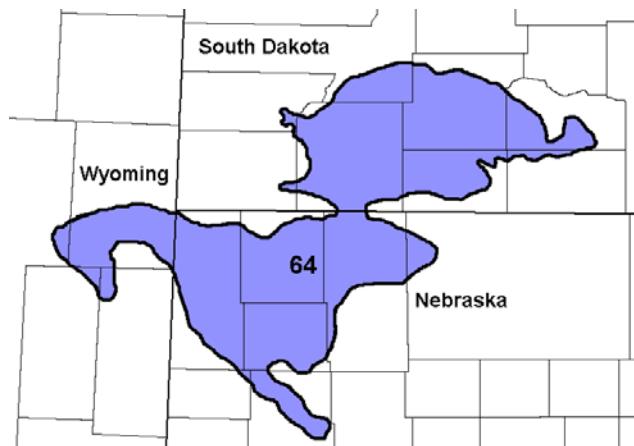
**Site Name:** Thin Upland

**Site ID:** R064XY037NE

**Major Land Resource Area:**  
64 – Mixed Sandy and Silty Tableland

### Physiographic Features

This site generally occurs on steep shoulders or backslopes of hills and plains.



**Landform:** hill, plain, knoll

**Aspect:** N/A

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	2900	4000
<b>Slope (percent):</b>	0	40
<b>Water Table Depth (inches):</b>	None	None
<b>Flooding:</b>		
<b>Frequency:</b>	None	None
<b>Duration:</b>	None	None
<b>Ponding:</b>		
<b>Depth (inches):</b>	None	None
<b>Frequency:</b>	None	None
<b>Duration:</b>	None	None
<b>Runoff Class:</b>	Medium	High

### Climatic Features

MLRA 64 is considered to have a continental climate – cold winters and hot summers, low humidity, light rainfall, and much sunshine. Extremes in temperature may also abound. The climate is the result of this MLRA's location near the geographic center of North America. There are few natural barriers on the northern Great Plains and the winds move freely across the plains and account for rapid changes in temperature.

Annual precipitation ranges from 14 to 20 inches per year. The normal average annual temperature is about 47° F. January is the coldest month with average temperatures ranging from about 21° F (Wood, SD) to about 25° F (Hemingford, NE). July is the warmest month with temperatures averaging from about 70° F (Keeline 3 W, WY) to about 76° F (Wood, SD). The range of normal average monthly temperatures between the coldest and warmest months is about 55° F. This large annual range attests to the continental nature of this area's climate. Hourly winds average about 11 miles per hour annually, ranging from about 13 miles per hour during the spring to about 10 miles per hour during the summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 50 miles per hour.

Growth of native cool season plants begins mid to late March and continues to late June. Native warm season plants begin growth in early May and continue to late August. Green up of cool season plants may occur in September and October when adequate soil moisture is present.

	<u>Minimum</u>	<u>Maximum</u>
<b>Frost-free period (days):</b>	138	143
<b>Freeze-free period (days):</b>	161	163
<b>Mean Annual Precipitation (inches):</b>	14	20

#### **Average Monthly Precipitation (inches) and Temperature (°F):**

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.42	0.52	9.0	35.8
February	0.48	0.61	14.6	40.7
March	0.90	1.22	21.0	47.5
April	1.83	2.15	28.9	61.3
May	2.22	3.38	38.3	72.2
June	2.05	3.27	47.3	82.1
July	1.63	2.73	53.9	90.1
August	1.09	1.96	52.3	89.3
September	1.09	1.58	42.4	79.5
October	0.80	1.38	32.6	66.6
November	0.56	0.65	20.4	49.0
December	0.42	0.50	13.4	38.4

<b>Climate Stations</b>		<b>Period</b>	
<b>Station ID</b>	<b>Location or Name</b>	<b>From</b>	<b>To</b>
NE3755	Hemingford, NE	1964	1999
WY5085	Keeline 3 W, WY	1953	1986
SD9442	Wood, SD	1948	1999

For local climate stations that may be more representative, refer to <http://www.wcc.nrcs.usda.gov>.

## **Influencing Water Features**

No significant water features influence this site.

## **Representative Soil Features**

The features common to all soils in this site are the very fine sandy loam to silty clay loam textured surface soils and slopes of 0 to 40 percent. The soils in this site are well to somewhat excessively drained and formed in soft siltstone or loamy alluvium and residuum. The surface layer is 2 to 11 inches thick. The texture of the profile ranges from very fine sandy loam to silty clay loam. The soils have a moderate infiltration rate. These soils are typically calcareous at or near the surface; however, carbonates are not always distinguishable in the upper layers. The soil profile should show evidence of weak development (i.e., thin A horizon, pale colors, lack of argillic horizon). This site should show slight to no evidence of rills, wind scoured areas or pedestalled plants. Water flow paths are broken, irregular in appearance or discontinuous with numerous debris dams or vegetative barriers. The soil surface is stable and intact.

These soils are susceptible to wind and water erosion. The hazard of water erosion increases on slopes greater than about 15 percent. Loss of 50 percent or more of the surface layer of the soils on this site can result in a shift in species composition and/or production.

More information can be found in the various soil survey reports. Contact the local USDA Service Center for soil survey reports that include more detail specific to your location.

**Parent Material Kind:** sedimentary, loess

**Parent Material Origin:** mixed

**Surface Texture:** silt loam, silty clay loam, very fine sandy loam

**Surface Texture Modifier:** none

**Subsurface Texture Group:** loamy

**Surface Fragments ≤ 3" (% Cover):** 0

**Surface Fragments > 3" (%Cover):** 0

**Subsurface Fragments ≤ 3" (% Volume):** 0-20

**Subsurface Fragments > 3" (% Volume):** 0-10

	<u>Minimum</u>	<u>Maximum</u>
<b>Drainage Class:</b>	well	somewhat excessively
<b>Permeability Class:</b>	moderately slow	moderate
<b>Depth (inches):</b>	20	>72
<b>Electrical Conductivity (mmhos/cm)*:</b>	0	8
<b>Sodium Absorption Ratio*:</b>	0	13
<b>Soil Reaction (1:1 Water)*:</b>	7.4	9.0
<b>Soil Reaction (0.1M CaCl<sub>2</sub>)*:</b>	NA	NA
<b>Available Water Capacity (inches)*:</b>	5	8
<b>Calcium Carbonate Equivalent (percent)*:</b>	0	45

\* - These attributes represent from 0-40 inches or to the first restrictive layer.

## Plant Communities

### Ecological Dynamics of the Site:

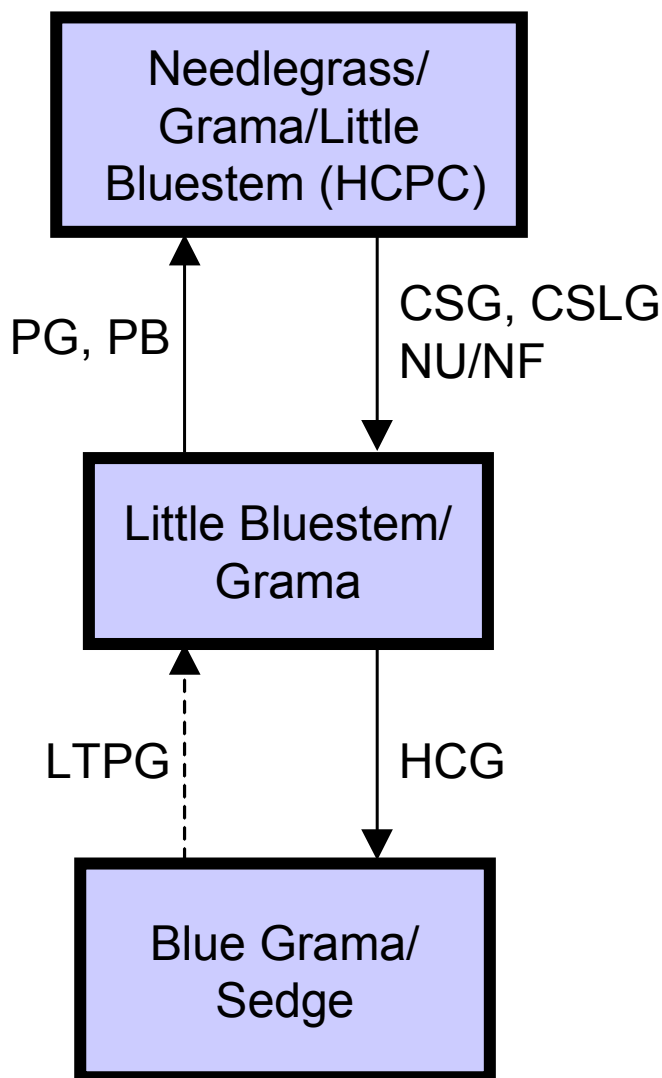
The interpretive plant community developed under Northern Great Plains climatic conditions, and included natural influence of large herbivores and occasional fire. Changes will occur in the plant communities due to management actions and/or climatic conditions.

Encroachment of ponderosa pine, Rocky Mountain juniper and eastern redcedar may occur from associated sites, and can shift site characteristics. These shifts can alter the site dynamics and potential. These species may occur in small amounts on several plant communities.

The plant community upon which interpretations are primarily based is the Historic Climax Plant Community (HCPC). The HCPC has been determined by study of rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Sub-climax plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

The following is a diagram that illustrates the common plant communities that can occur on the site and the transition pathways between communities. The ecological processes will be discussed in more detail in the plant community descriptions following the diagram.

## Plant Communities and Transitional Pathways



**CSG** - continuous seasonal grazing; **CSLG** - continuous season-long grazing; **HCPC** - Historical Climax Plant Community; **HCG** - heavy continuous grazing; **LTPG** - long-term prescribed grazing; **NU/NF** - extended period of non-use & no fire; **PB** - prescribed burning followed by prescribed grazing; **PG** - prescribed grazing.

### Plant Community Composition and Group Annual Production

			Needlegrass/Grama/Little Bluestem (HCPC)		
COMMON/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Group	lbs./acre	% Comp
GRASSES & GRASS-LIKES				1350 - 1530	75 - 85
little bluestem	Schizachyrium scoparium	SCSC	1	180 - 540	10 - 30
sideoats grama	Bouteloua curtipendula	BOCU	2	90 - 360	5 - 20
NEEDLEGRASS			3	180 - 270	10 - 15
needleandthread	Hesperostipa comata ssp. comata	HECOC8	3	180 - 270	10 - 15
porcupine grass	Hesperostipa spartea	HESP11	3	0 - 90	0 - 5
green needlegrass	Nassella viridula	NAVI4	3	0 - 90	0 - 5
SHORT WARM-SEASON			4	180 - 360	10 - 20
blue grama	Bouteloua gracilis	BOGR2	4	180 - 360	10 - 20
hairy grama	Bouteloua hirsuta	BOHI2	4	0 - 90	0 - 5
buffalograss	Buchloe dactyloides	BUDA	4	0 - 90	0 - 5
NATIVE GRASSES/GRASS-LIKES			5	180 - 450	10 - 25
sedge	Carex spp.	CAREX	5	90 - 180	5 - 10
big bluestem	Andropogon gerardii	ANGE	5	0 - 180	0 - 10
prairie junegrass	Koeleria macrantha	KOMA	5	18 - 90	1 - 5
western wheatgrass	Pascopyrum smithii	PASM	5	90 - 270	5 - 15
Sandberg bluegrass	Poa secunda	POSE	5	0 - 54	0 - 3
other perennial grasses		2GP	5	0 - 54	0 - 3
FORBS			6	90 - 270	5 - 15
cudweed sagewort	Artemisia ludoviciana	ARLU	6	18 - 72	1 - 4
dalea	Dalea spp.	DALEA	6	18 - 90	1 - 5
dotted gayfeather	Liatris punctata	LIPU	6	36 - 90	2 - 5
false boneset	Brickellia eupatorioides	BREU	6	0 - 90	0 - 5
green sagewort	Artemisia dracunculus	ARDR4	6	0 - 90	0 - 5
heath aster	Symphyotrichum ericoides	SYER	6	0 - 36	0 - 2
milkvetch	Astragalus spp.	ASTRA	6	18 - 90	1 - 5
miner's candle	Cryptantha celosioides	CRCE	6	0 - 36	0 - 2
purple coneflower	Echinacea angustifolia	ECAN2	6	36 - 180	2 - 10
pussytoes	Antennaria spp.	ANTEN	6	0 - 36	0 - 2
scarlet gaura	Gaura coccinea	GACO5	6	18 - 54	1 - 3
scarlet globemallow	Sphaeralcea coccinea	SPCO	6	18 - 90	1 - 5
spiny phlox	Phlox hoodii	PHHO	6	0 - 36	0 - 2
western ragweed	Ambrosia psilostachya	AMPS	6	18 - 90	1 - 5
other perennial forbs		2FP	6	0 - 36	0 - 2
SHRUBS			7	90 - 180	5 - 10
catclaw sensitive briar	Mimosa nuttallii	MINU6	7	18 - 36	1 - 2
dwarf false indigo	Amorpha nana	AMNA	7	0 - 36	0 - 2
fringed sagewort	Artemisia frigida	ARFR4	7	36 - 90	2 - 5
leadplant	Amorpha canescens	AMCA6	7	0 - 90	0 - 5
rose	Rosa spp.	ROSA5	7	0 - 90	0 - 5
skunkbush sumac	Rhus trilobata	RHTR	7	0 - 36	0 - 2
yucca	Yucca glauca	YUGL	7	0 - 90	0 - 5
other shrubs		2SHRUB	7	0 - 54	0 - 3
Annual Production lbs./acre			LOW	RV	HIGH
GRASSES & GRASS-LIKES			1030 -	1485 -	1915
FORBS			85 -	180 -	300
SHRUBS			85 -	135 -	185
TOTAL			1200 -	1800 -	2400

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. RV = Representative value.

## Plant Community Composition and Group Annual Production

		Needlegrass/Grama/Little Bluestem (HCPC)			Little Bluestem/Grama			Blue Grama/Sedge		
COMMON/GROUP NAME	SYMBOL	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp
GRASSES & GRASS-LIKES			1350 - 1530	75 - 85		1280 - 1440	80 - 90		675 - 765	75 - 85
little bluestem	SCSC	1	180 - 540	10 - 30	1	480 - 880	30 - 55	1	9 - 90	1 - 10
sideoats grama	BOCU	2	90 - 360	5 - 20	2	16 - 160	1 - 10	2	9 - 45	1 - 5
NEEDLEGRASS		3	180 - 270	10 - 15	3	0 - 80	0 - 5	3	0 - 45	0 - 5
needleandthread	HECOC8	3	180 - 270	10 - 15	3	0 - 80	0 - 5	3	0 - 45	0 - 5
porcupine grass	HESP11	3	0 - 90	0 - 5	3	0 - 16	0 - 1			
green needlegrass	NAV14	3	0 - 90	0 - 5	3	0 - 16	0 - 1			
SHORT WARM-SEASON		4	180 - 360	10 - 20	4	240 - 560	15 - 35	4	180 - 360	20 - 40
blue grama	BOGR2	4	180 - 360	10 - 20	4	240 - 480	15 - 30	4	180 - 360	20 - 40
hairy grama	BOHI2	4	0 - 90	0 - 5	4	0 - 160	0 - 10	4	0 - 90	0 - 10
buffalograss	BUDA	4	0 - 90	0 - 5	4	0 - 160	0 - 10	4	0 - 90	0 - 10
NATIVE GRASSES/GRASS-LIKES		5	180 - 450	10 - 25	5	160 - 320	10 - 20	5	135 - 315	15 - 35
sedge	CAREX	5	90 - 180	5 - 10	5	160 - 240	10 - 15	5	135 - 225	15 - 25
big bluestem	ANGE	5	0 - 180	0 - 10	5	0 - 48	0 - 3			
prairie junegrass	KOMA	5	18 - 90	1 - 5	5	0 - 48	0 - 3	5	0 - 27	0 - 3
western wheatgrass	PASM	5	90 - 270	5 - 15	5	0 - 48	0 - 3	5	0 - 45	0 - 5
Sandberg bluegrass	POSE	5	0 - 54	0 - 3	5	0 - 48	0 - 3	5	0 - 27	0 - 3
threeawn	ARIST				5	0 - 80	0 - 5	5	18 - 90	2 - 10
dropseed	SPORO				5	0 - 80	0 - 5	5	9 - 45	1 - 5
other perennial grasses	2GP	5	0 - 54	0 - 3	5	0 - 48	0 - 3	5	0 - 27	0 - 3
FORBS		6	90 - 270	5 - 15	6	80 - 160	5 - 10	6	45 - 135	5 - 15
cudweed sagewort	ARLU	6	18 - 72	1 - 4	6	32 - 96	2 - 6	6	9 - 36	1 - 4
dalea	DALEA	6	18 - 90	1 - 5	6	0 - 48	0 - 3			
dotted gayfeather	LIPU	6	36 - 90	2 - 5	6	0 - 48	0 - 3	6	0 - 18	0 - 2
false boneset	BREU	6	0 - 90	0 - 5	6	0 - 48	0 - 3			
green sagewort	ARDR4	6	0 - 90	0 - 5	6	16 - 96	1 - 6	6	9 - 54	1 - 6
heath aster	SYER	6	0 - 36	0 - 2	6	16 - 80	1 - 5	6	18 - 54	2 - 6
milkvetch	ASTRA	6	18 - 90	1 - 5	6	16 - 32	1 - 2	6	18 - 36	2 - 4
miner's candle	CRCE	6	0 - 36	0 - 2	6	0 - 16	0 - 1			
purple coneflower	ECAN2	6	36 - 180	2 - 10	6	32 - 80	2 - 5	6	18 - 72	2 - 8
pussytoes	ANTEN	6	0 - 36	0 - 2	6	0 - 16	0 - 1	6	0 - 45	0 - 5
scarlet gaura	GACO5	6	18 - 54	1 - 3	6	0 - 48	0 - 3	6	9 - 45	1 - 5
scarlet globemallow	SPCO	6	18 - 90	1 - 5	6	16 - 48	1 - 3	6	9 - 27	1 - 3
spiny phlox	PHHO	6	0 - 36	0 - 2	6	0 - 16	0 - 1	6	0 - 27	0 - 3
western ragweed	AMPS	6	18 - 90	1 - 5	6	16 - 96	1 - 6	6	18 - 54	2 - 6
other perennial forbs	2FP	6	0 - 36	0 - 2	6	0 - 32	0 - 2	6	0 - 18	0 - 2
SHRUBS		7	90 - 180	5 - 10	7	80 - 160	5 - 10	7	45 - 90	5 - 10
catclaw sensitive briar	MINU6	7	18 - 36	1 - 2	7	0 - 16	0 - 1			
dwarf false indigo	AMNA	7	0 - 36	0 - 2	7	0 - 16	0 - 1			
fringed sagewort	ARFR4	7	36 - 90	2 - 5	7	48 - 96	3 - 6	7	27 - 90	3 - 10
leadplant	AMCA6	7	0 - 90	0 - 5	7	0 - 32	0 - 2			
rose	ROSA5	7	0 - 90	0 - 5	7	0 - 80	0 - 5	7	0 - 18	0 - 2
skunkbush sumac	RHTR	7	0 - 36	0 - 2	7	0 - 32	0 - 2	7	0 - 18	0 - 2
yucca	YUGL	7	0 - 90	0 - 5	7	0 - 80	0 - 5	7	0 - 54	0 - 6
other shrubs	2SHRUB	7	0 - 54	0 - 3	7	0 - 48	0 - 3	7	0 - 27	0 - 3
Annual Production lbs./acre		LOW RV HIGH			LOW RV HIGH			LOW RV HIGH		
GRASSES & GRASS-LIKES		1030 - 1485 - 1915			850 - 1360 - 1770			420 - 743 - 1065		
FORBS		85 - 180 - 300			75 - 120 - 165			40 - 90 - 140		
SHRUBS		85 - 135 - 185			75 - 120 - 165			40 - 68 - 95		
TOTAL		1200 - 1800 - 2400			1000 - 1600 - 2100			500 - 900 - 1300		

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. RV = Representative value.

## Plant Community and Vegetation State Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data are collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC’s) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

### Needlegrass/Grama/Little Bluestem Plant Community

This is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community can be found on areas that are properly managed with grazing and/or prescribed burning, and sometimes on areas receiving occasional short periods of rest. The potential vegetation is about 75% grasses or grass-like plants, 15% forbs, and 10% shrubs. The plant community is dominated by a mixture of cool and warm season grasses.

The major grasses include little bluestem, needleandthread, sideoats grama and blue grama. Other grasses and grass-likes occurring include sedge, western wheatgrass, green needlegrass and prairie junegrass. Significant forbs include purple coneflower, dotted gayfeather and prairie clover. Significant shrubs found in this plant community include fringed sagewort, rose and yucca. Refer to the plant community composition and group annual production table for species composition and production.

This plant community is extremely resilient and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought tolerance. Community dynamics, nutrient cycle, water cycle and energy flow are functioning properly. Plant litter is properly distributed with very little movement off-site and natural plant mortality is very low. The diversity in plant species allows for high drought tolerance.

The following growth curve is an estimate of the monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6404

Growth curve name: Pine Ridge/Badlands, warm-season dominant, cool-season sub-dominant.

Growth curve description: Warm-season dominant, cool-season sub-dominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	8	15	24	23	15	5	5	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Continuous seasonal grazing (early season grazing with high stock densities results in increased soil disturbance and favors the little bluestem) or continuous season-long grazing (low to moderate stocking rates resulting in patch grazing) will convert this plant community to the *Little Bluestem/Grama Plant Community*.
- Non-use and no fire will also shift this plant community to the *Little Bluestem/Grama Plant Community*.

### **Little Bluestem/Grama Plant Community**

Historically, this plant community evolved under continuous seasonal grazing or continuous season-long grazing and a low fire frequency. This plant community can also result from extended periods of non-use and no fire. Little bluestem dominates this plant community, as it takes advantage of soil disturbance (resulting from hoof action, or increased bare ground due to reduced plant vigor under non-use and no fire). Other significant grasses or grass-like plants include blue grama, sideoats grama and sedge. Forbs commonly found in this plant community include cudweed sagewort, purple coneflower and dotted gayfeather. Significant shrubs include fringed sagewort and catclaw sensitive briar. The potential vegetation is about 80% grasses or grass-like plants, 10% forbs, and 10% shrubs. Refer to the plant community composition and group annual production table for species composition and production. Although production remains relatively high, little bluestem plants often become “wooly”, and largely unavailable to most herbivores.

This plant community is moderately resistant to change. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6405

Growth curve name: Pine Ridge/Badlands, warm-season dominant.

Growth curve description: Warm-season dominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	7	15	20	30	15	5	5	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Heavy continuous grazing will convert the plant community to the *Blue Grama/Sedge Plant Community*.
- Prescribed grazing or prescribed burning followed by prescribed grazing will convert this plant community to the *Needlegrass/Grama/Little Bluestem Plant Community*.

### **Blue Grama/Sedge Plant Community**

This plant community evolves from heavy grazing over many years. Diversity is diminished, as the short grasses become dominant in the plant community. The grazing tolerant blue grama and sedges replace little bluestem, western wheatgrass and the needlegrasses. Sideoats grama remains in the plant community, but is less productive because of competition and grazing pressure. Due to low palatability, cudweed sagewort, milkvetch, heath aster and green sagewort become more prevalent in the plant community. Fringed sagewort is the dominant shrub in this plant community. The potential vegetation is about 75% grasses or grass-like plants, 10% forbs, and 15% shrubs. Refer to the plant community composition and group annual production table for species composition and production.

This plant community is resistant to change. The herbaceous species present are not suitable to grazing.



Site Type: Rangeland  
MLRA: 64 – Mixed Sandy and Silty Tableland

**Thin Upland**  
**R064XY037NE**

The following growth curve is an estimate of the monthly percentages of total annual growth of the dominant species expected during a normal year.

Growth curve number: NE6404

Growth curve name: Pine Ridge/Badlands, warm-season dominant, cool-season sub-dominant.

Growth curve description: Warm-season dominant, cool-season sub-dominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	8	15	24	23	15	5	5	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Long-term prescribed grazing that includes changing season of use and allowing adequate recovery periods will slowly lead this plant community back to the *Little Bluestem/Grama Plant Community*.

## Ecological Site Interpretations

### Animal Community – Wildlife Interpretations

-- Under Development --

**Needlegrass/Grama/Little Bluestem Plant Community:**

**Little Bluestem/Grama Plant Community:**

**Blue Grama/Sedge Plant Community:**

## Animal Preferences (Quarterly – 1,2,3,4<sup>†</sup>)

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
<b>Grasses &amp; Grass-like</b>							
big bluestem	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
blue grama	U D P U	D P P D	U D P U	D P P D	D P P D	U D P U	U D P U
buffalograss	U U D U	N U D U	U U D U	N U D U	N U D U	U U D U	U U D U
green needlegrass	U P U D	N P N P	U P U D	N P N P	N P N P	U P U D	U P U D
hairy grama	U D P U	D P P D	U D P U	D P P D	D P P D	U D P U	U D P U
little bluestem	U D D U	N D N N	U D D U	N D N N	N D N N	U D D U	U D D U
needleandthread	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
porcupine grass	U P U D	N D N U	U P U D	N D N U	N D N U	U P U D	U P U D
prairie junegrass	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
Sandberg bluegrass	N U N N	N D N N	N U N N	N D N N	N D N N	N U N N	N U N N
sedge	U D U D	U P N D	U D U D	U D U D	U D U D	U D U D	U D U D
sideoats grama	U D P U	U P D U	U D P U	U P D U	U P D U	U D P U	U D P U
western wheatgrass	U P D U	N D N N	U P D U	N D N N	N D N N	U P D U	U P D U
<b>Forbs</b>							
cudweed sagewort	U U U U	U U D U	U U U U	U U D U	U U D U	U U U U	U U D U
dalea	U D P U	U P P U	U D P U	U P P U	U P P U	U D P U	U P P U
dotted gayfeather	U U D U	U P P U	U U D U	U P P U	U P P U	U U D U	U P P U
false boneset	U U D U	N D U N	U U D U	N D U N	N D U N	U U D U	N D U N
green sagewort	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U
heath aster	U U D U	U U P U	U U D U	U U P U	U U P U	U U D U	U U P U
milkvetch	U U U U	U D U U	U U U U	U D U U	U D U U	U U U U	U D U U
miner's candle	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
purple coneflower	U U D U	U P P U	U U D U	U P P U	U P P U	U U D U	U P P U
pussytoes	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U
scarlet gaura	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
scarlet globemallow	U U D U	U D D U	U U D U	U D D U	U D D U	U U D U	U D D U
spiny phlox	U D U U	U P P U	U D U U	U P P U	U P P U	U D U U	U P P U
western ragweed	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
<b>Shrubs</b>							
catclaw sensitive briar	U D P U	U P P U	U D P U	U P P U	U P P U	U D P U	U P P U
dwarf false indigo	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U
fringed sagewort	U U U U	U U U U	U U U U	U D D U	U P P D	U U U U	U U U D
leadplant	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U
rose	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U
skunkbush sumac	D U U D	D U U D	D U U D	D U U D	D U U D	D U U D	D U U D
yucca	D N N D	D U U D	D N N D	D U U D	D U U D	D N N D	D U U D

**N** = not used; **U** = undesirable; **D** = desirable; **P** = preferred; **T** = toxic

<sup>†</sup> Quarters: 1 – Jan., Feb., Mar.; 2 – Apr., May, Jun.; 3 – Jul., Aug., Sep.; 4 – Oct., Nov., Dec.

## Animal Community – Grazing Interpretations

The following table lists suggested initial stocking rates for cattle under continuous grazing (year long grazing or growing season long grazing) under normal growing conditions; however, *continuous grazing is not recommended*. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production.

More precise carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data, particularly when grazers other than cattle are involved. With consultation of the land manager, more intensive grazing management may result in improved harvest efficiencies and increased carrying capacity.

<b>Plant Community</b>	<b>Production (lbs./acre)</b>	<b>Carrying Capacity* (AUM/acre)</b>
Needlegrass/Grama/Little Bluestem	1800	0.44 – 0.58
Little Bluestem/Grama	1600	0.30 – 0.40
Blue Grama/Sedge	900	0.30 – 0.35

\* Continuous season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage. During the dormant period, the forage for livestock will likely be lacking protein to meet livestock requirements, and added protein will allow ruminants to better utilize the energy stored in grazed plant materials. A forage quality test (either directly or through fecal sampling) should be used to determine the level of supplementation needed.

## Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C. Infiltration ranges from moderately slow to moderate. Runoff potential for this site varies from medium to very high depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook).

## Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

## Wood Products

No appreciable wood products are present on the site.

## Other Products

Seed harvest of native plant species can provide additional income on this site.

## Supporting Information

### Associated Sites

(064XY015NE) – Loamy 14-17" P.Z.	(064XY036NE) – Loamy 17-20" P.Z.
(064XY011NE) – Sandy 14-17" P.Z.	(064XY032NE) – Sandy 17-20" P.Z.
(064XY014NE) – Clayey 14-17" P.Z.	(064XY035NE) – Clayey 17-20" P.Z.
(064XY040NE) – Shallow	

### Similar Sites

(064XY040NE) – Shallow  
[less little bluestem; slightly lower production; soils shallow to rock, gravel or other root restrictive layer (20 inches or less)]

## Inventory Data References

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range-trained personnel was also used. Those involved in developing this site include: Jill Epley, Range Management Specialist, NRCS; Rick Peterson; Range Management Specialist, NRCS; David Steffen, Range Management Specialist, NRCS; Jeff Vander Wilt; Range Management Specialist, NRCS.

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417				
Ocular estimates				

## State Correlation

This site has been correlated with Nebraska, South Dakota and Wyoming in MLRA 64.

## Field Offices/Counties

Alliance, NE	Box Butte	Lusk, WY	Niobrara	Torrington, WY	Goshen
Bridgeport, NE	Morrill	Martin, SD	Bennett/Shannon	Wall, SD	East Pennington
Chadron, NE	Dawes/Sioux	Rapid City, SD	Pennington	Wheatland, WY	Platte
Douglas, WY	Converse	Rushville, NE	Sheridan		
Kadoka, SD	Jackson	Scottsbluff, NE	Scottsbluff		

## Relationship to Other Established Classifications

Level IV Ecoregions of the Conterminous United States: 25a – Pine Ridge Escarpment, 43h – White River Badlands, and 43i – Keya Paha Tablelands.

## Other References

High Plains Regional Climate Center, University of Nebraska, 830728 Chase Hall, Lincoln, NE 68583-0728. (<http://hpccsun.unl.edu>)

USDA, NRCS. National Water and Climate Center, 101 SW Main, Suite 1600, Portland, OR 97204-3224. (<http://wcc.nrcs.usda.gov>)

USDA, NRCS. National Range and Pasture Handbook, September 1997

USDA, NRCS. National Soil Information System, Information Technology Center, 2150 Centre Avenue, Building A, Fort Collins, CO 80526. (<http://nasis.nrcs.usda.gov>)

USDA, NRCS. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDA, NRCS, Various Published Soil Surveys.

## Site Description Approval

_____ State Range Management Specialist	_____ Date	_____ State Range Management Specialist	_____ Date
_____ State Range Management Specialist	_____ Date		